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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/839,594	04/23/2001	Chan Eon Park	401182	1498

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EXAMINER

NGUYEN, KHIEM D

ART UNIT	PAPER NUMBER
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2823

DATE MAILED: 04/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/839,594

Applicant(s)

PARK ET AL.

Examiner

Khiem D Nguyen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 21 and 22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

The non-final rejection as set forth in paper No. (8) is withdrawn in response to applicants' amendments.

A new rejection is made as set forth in this Office Action.

Claims (1-22) are pending in the application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holl (U.S. Pub. 2002/0038582) in view of Sato et al. (U.S. Patent 6,232,777), Ohtaki (U.S. Patent 6,063,303), Saitoh et al. (U.S. Patent 4,734,708), Wegman (U.S. Patent 5,699,842) and Papisov et al. (U.S. Patent 5,582,172).

Holl discloses a composite comprising (paragraphs [0035] and [0036]):

A layer of a (transparent) dielectric material having a thickness, as a matrix of the composite; and

nano magnetic particles having a dimension and dispersed throughout the matrix.

Holl discloses wherein the thickness is in the range 0.1 to 50 micrometers but fails to explicitly disclose wherein the thickness is at least one thousand times the dimension as recited in present claims 1, 13 and 18.

Sato discloses an insulator disposed on the semiconductor substrate and comprising a composite including a layer of a dielectric material (alumina (Al_2O_3)) 125 having a thickness, as a matrix of the insulator, and spherical nano magnetic particles having a dimension of about 6 nm and dispersed throughout the matrix (col. 7, line 63 to col. 8, line 6). It would have been obvious to one of ordinary skill in the art of making semiconductor devices to combine the teaching of Holl and Sato to enable the dielectric material having a thickness and nano magnetic particles having a dimension of Holl to be formed such that the thickness is at least one thousand times the dimension.

Neither Holl nor Sato discloses including spherical nano magnetic particles in addition to the non-spherical nano magnetic particles as recited in present claims 3 and 14.

Ohtaki discloses including spherical nano magnetic particles in addition to the non-spherical nano magnetic particles (col. 2, line 66 to col. 3, line 6). It would have been obvious to one of ordinary skill in the art of making semiconductor devices to combine the teaching of Holl and Ohtaki to enable the nano magnetic particles of Holl to be formed and furthermore to improve the electromagnetic characteristics (col. 3, lines 3-6).

Neither Holl nor Sato discloses wherein the matrix is selected from the group consisting of polyimide, PMMA, and methyl silsesquioxane and wherein the nano magnetic particles are selected from the group consisting of ($\gamma\text{-Fe}_2\text{O}_3$), chromium oxide (CrO_2), europium oxide (EuO), NiZn-ferrite, MnZn-ferrite, and yttrium-iron garnet as recited in present claims 6 and 11.

Saitoh discloses wherein the matrix is selected from the group consisting of polyimide and wherein the nano magnetic particles are selected from the group consisting of (γ - Fe_2O_3) (col. 10, lines 43-55). It would have been obvious to one of ordinary skill in the art of making semiconductor devices to combine the teaching of Holl and Saitoh to enable the matrix and nano magnetic particles of Holl to be formed.

None of the references disclose including diamagnetic nano magnetic particles in addition to the superparamagnetic nano particles as recited in present claims 8 and 17.

Wegman discloses including diamagnetic nano magnetic particles in addition to the superparamagnetic nano particles (col. 7, lines 46-53). It would have been obvious to one of ordinary skill in the art of making semiconductor devices to combine the teaching of Holl and Wegman to enable the diamagnetic and superparamagnetic nano particles to be formed.

None of the references disclose wherein the diamagnetic nano particles include indium (In) as recited in present claim 9.

Papisov discloses wherein the diamagnetic nano particles include indium (In) (col. 30, claim 36). It would have been obvious to one of ordinary skill in the art of making semiconductor devices to combine the teaching of Holl and Papisov to enable the diamagnetic nano particles of Holl to be formed.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khiem D Nguyen whose telephone number is (703) 306-0210. The examiner can normally be reached on Monday-Friday (8:00 AM - 5:00 PM).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chaudhuri Olik can be reached on (703) 306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-9179 for regular communications and (703) 746-9179 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

K.N.
April 4, 2003


Chaudhuri Olik
Supervisory Patent Examiner
Technology Center 2800